

FINAL PROJECT REPORT

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Institutional Support for Sustainable Environmental Management of the Panama Canal Watershed

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LIST OF ACRONYMS

ACP	Panama Canal Authority
AED	Academy for Educational Development-Environmental Education and Communication (IQC of USAID's Global Environment Center -- G/ENV)
ANAM	National Environmental Authority
ARI	Authority for Inter-Oceanic Region
CICH	Inter-Institutional Commission for the Panama Canal Watershed
GIS	Geographic Information System
GOP	Government of Panama
IDAAN	National Institute of Sewers and Aqueducts
MIDA	Ministry of Agricultural Development
MIVI	Ministry of Housing
NATURA	Foundation for the Conservation of Natural Resources
NGO	Non-Government Organization
PCW	Panama Canal Watershed
PTC	Permanent Technical Committee
SO	Strategic Objective
USAID	United States Agency for International Development

INTRODUCTORY STATEMENT

Under an EPIQ IQC Task Order that began in August 1999 and ended in September 2002, IRG provided technical assistance in support of the sustainable management of the Panama Canal Watershed (PCW). This assistance was aimed at strengthening the Panamanian organizations that make up the Inter-Institutional Canal Watershed Commission (CICH). The CICH was created by Panamanian law and given the responsibility of coordinating all activity in the PCW to assure that the Watershed is managed in a sustainable manner. It is made up of the Panama Canal Authority (ACP), the Ministry of Housing (MIVI), the Ministry of Agriculture (MIDA), the Ministry of Justice and Governance (MINGOV), the National Environmental Authority (ANAM), the Authority for Inter-oceanic Region (ARI) and two not-for profit organizations—Fundación Natura and Cáritas Arquidiocesana.

To achieve this objective, we organized our work along five related Activity Tracks— (1) policy formulation, (2) planning, (3) capacity building, (4) information systems development, and (5) design of inter-institutional coordinating mechanisms (areas of activity essential to the strengthening of the Panamanian organizations charged with managing the PCW).

In designing the Activity Tracks, and in carrying out the discrete interventions under the Tracks, we constantly sought to generate synergies and maximize impact for the sustainable development of the Watershed. We also were careful to assure that each discrete activity contributed, in a direct way, to the achievement of Task Order objectives. In executing each intervention, we assigned appropriate blends of short-term technical assistance sustained counseling and technology transfer from our long-term staff, to realize the desired results. Finally, we gave a special emphasis to collaboration among public, private and NGO sectors and to the active participation of stakeholders at all levels, in designing and implementing our interventions.

All of the activities carried out under this task order were done so in accordance with periodic Work Plans that were developed with IRG in close consultation with counterparts and approved by USAID/Panama.

RELATIONSHIP OF THIS PROGRAM TO THE STRATEGIC OBJECTIVES OF USAID/PANAMA

USAID/Panama established a set of *Strategic Objectives* (SOs) in its proposed Strategic Plan for FY 2000 - 2006. The USAID SO, that pertains to this program, is *Strategic Objective No. 1: Panama Sustainably Manages the Canal Watershed and Buffer Areas*. This SO incorporated the following intermediate results (IRs):

- IR#1: Institutional Arrangements for Effective PCW Management Functioning;
 - IR#2: Natural Resources in the PCW and Buffer Areas Managed Effectively;
 - IR#3: Civil Society Effectively Participating in Management of the PCW and Buffer Areas;
- and

IR#4: Local Government and Private Sector Capacity for Environmental Management in the PCW and Buffer Areas Increased.

USAID's overriding interest as expressed by its SO No. 1 and the IRs, was the institutional strengthening of the Panamanian organizations responsible for the environmental management of the PCW. This interest was totally consistent with the interests of the Government of Panama (GOP), as expressed in the recent legislation, cited above. Thus, this program: ***Institutional Support for Sustainable Environmental Management of the Canal Watershed*** was a direct outgrowth of the specific interests of USAID and GOP. Each of the IRs identified above had a direct relationship to the accomplishment of the SO, and this program supports IR no.1.

OBJECTIVE

The objective of this program was to provide the institutional strengthening and support including policy formulation assisting to those entities and agencies of the GOP responsible for the management of the environment in the PCW. This objective was a direct outgrowth of the current setting in Panama and the specific interests of the GOP, which legally mandated the establishment of the Inter-institutional Commission for the Panama Canal Watershed that will serve as the coordinating entity to assure the proper environmental management of the PCW. This objective was primarily intended to ensure that the CICH functions effectively. It was achieved through the close working collaboration of the Consultant with those institutions of GOP such as: ACP, ARI, MIDA, ANAM, MIVI; Local Governments, and others; NGOs; CBOs; and other organizations, which may be identified as the work progresses; and with USAID.

SETTING

The last quarter of 1999 witnessed events that held promise for tremendous change in Panamanian society. On December 31, 1999, Panama assumed full responsibility for the operation and maintenance of the Panama Canal, with all the ramifications implied by this major event. Also, on September 1, 1999, a new government took office after a peaceful and transparent election process. The newly elected administration moved quickly to establish its cadre of personnel in key positions, and its spectrum of policies regarding various aspects of life in Panama. These landmark events represented the culmination of processes begun much earlier.

However, they were symbols of a dynamism that took hold of the country and offered the opportunity to launch programs that would have significant positive impact on Panama as a people and as a nation. The pervasive sense of “important change”, with both the instability and opportunity that such change brings, was the context in which this Task Order was launched.

Legislative actions in the late 1990s also contributed to the framework for these new programs, such as that represented by this Task Order, to be undertaken. In June 1997, Law 19, which established a new agency, the Panama Canal Authority (ACP), to manage operation of the Panama Canal, was enacted. The ACP assumed the functions of its predecessor, Panama Canal Commission (PCC). Law 19 assigned the ACP with a second (new) responsibility—management of all water resources in the Canal Watershed. Law 19 also called for creation of the CICH to coordinate the sustainable management of the PCW.

Law 21, promulgated in July 1997, established a Regional Plan for the Inter-Oceanic Region¹, and the General Plan for the use, conservation and development of the Canal Area. The law also created the Authority for Inter-Oceanic Region (ARI), and assigned it the responsibility of coordinating implementation of the Regional Plan.

Law 41, passed in July 1st 1998, established the National Environmental Authority (ANAM) and endowed it with responsibility to establish and implement environmental policy for the entire country including the PCW.

On August 31, 1999 additional legislation (Law 44) was passed that defined new limits for the PCW, and extended its boundaries westward. The original watershed area was about 339,649 hectares. Law 44 increased the PCW by 213,112 hectares². The rationale for this modification is to "reserve" this area as a water supply source in the event that the Canal operations are expanded by the construction of a third set of locks. The expanded watershed also provides sources for future water supply for expanding municipal and industrial requirements.

As noted above, the principal thrust of this Task Order was to support GOP efforts to put in place an institutional structure to effectively manage the Panama Canal Watershed. Over the 37-month life of this Task Order, IRG technical assistance and support focused on developing and strengthening the institutional and technical capacity of the following key counterpart agencies:

- The Panama Canal Authority (ACP)
- The Inter-Institutional Commission for the Panama Canal Watershed (CICH)
- The Authority for Inter-Oceanic Region (ARI)
- The National Environmental Authority (ANAM)
- The Ministry of Housing (MIVI)
- The Ministry of Agriculture (MIDA)

We also contributed to empowering the capacity of the following institutions associated with CICH activities:

- The Ministry of Education (MEDUC)
- The National Institution of Sewers and Aqueducts (IDAA)
- The National Foundation of Environmental Services (FUPASA)
- Local Governments (La Chorrera, Arraiján, Panamá, and Colón)

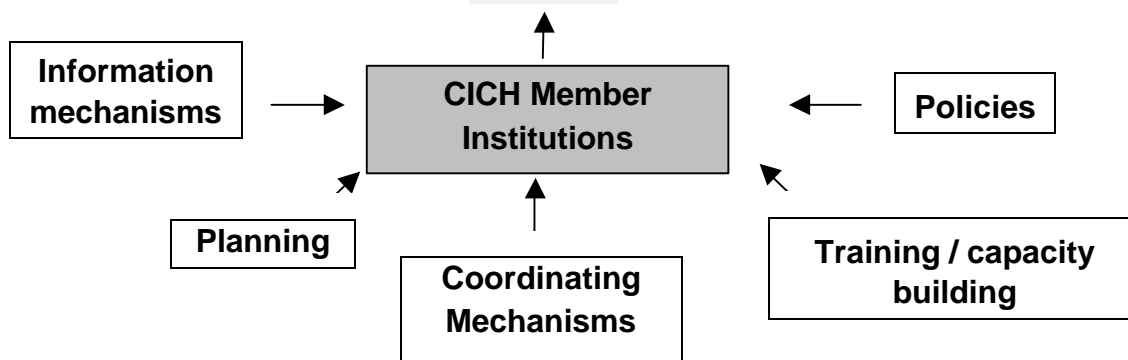
¹ The Inter-Oceanic Region is defined as the Panama Canal Watershed plus the areas that have reverted to Panama that are outside the Watershed.

² www.cich.org/prueba/cuenca.htm

Our assistance was channeled through a series of interventions along the five *Critical Activity Tracks* mentioned previously. In order to:

1. Strengthen *policy* development and analysis capacity;
2. Provide *training / capacity building* of human resources to provide skilled personnel for the sustainable management of the PCW;
3. Develop strategic *planning* skills;
4. Develop and implement *coordinating mechanisms* among the various institutions charged with managing the PCW; and
5. Design *information mechanisms* for sharing, collection and analysis.

Institutional Strengthening for Sustainable Environmental Management of the Watershed



KEY INTERVENTIONS

The principal accomplishments of the Task Order, desegregated by activity are presented below.

POLICY FORMULATION ACTIVITY TRACKS

A series of *policy* interventions (inter alia an analysis of the legal and institutional bases for the CICH and development, for ANAM, of norms and standards related to clean production, the codification of Law 21, and for MIVI norms and standards for micro-zoning) were carried out to assist in the institutional strengthening of CICH and its member institutions.

INTER-INSTITUTIONAL WATERSHED MANAGEMENT MECHANISM (CICH)

The series of laws (e.g. Law 19, Law 44, Law 41) promulgated by the Panamanian legislature over the past several years regarding environmental management has resulted in

inconsistencies, overlaps and vacuums regarding organizational responsibilities. This, in turn, contributed to inefficiencies in implementing these environmental policy measures. At the expressed request of the CICH's Executive Secretary, IRG embarked on a series of activities to address this need.

Outputs of this effort included:

- An assessment of the regulatory functions, to be carried out by the CICH and its member institutions, required in the PCW. The regulatory functions: permitting, application of fees, fines, enforcement mechanisms, etc., were defined, and their means of implementation analyzed, with recommendations regarding the most efficient means for implementing them.
- Development of a mechanism, a Preliminary Filter, to facilitate review and approval, by CICH member organizations, of proposed investments in the Watershed.
- Development of a draft agreement between the ACP and ANAM regarding institutional responsibilities related to Environmental Impact studies within the PCW.
- Definition of roles and responsibilities of the series of institutions (MIVI, MIDA, ANAM and the ACP) with regard to land use issues in the reverted territories as a part of the implementing regulations of Law 21.

DRAFTING OF DOCUMENT TO REFORMULATE BILL 96 THAT WOULD HAVE MODIFIED LAW 21 (CICH)

One of the key policy actions identified by the Permanent Technical Committee (PTC) of the CICH was the need to develop administrative codes and implementing regulations for Law 21.³ Coincidentally, the General Secretariat of the Legislative Assembly submitted, for the consideration of the "Comisión de Asuntos del Canal," Bill No. 96 to include a new category in the Regional and General Plan. This project proposed creation of a new land use category in an area of 1 km on each side of the Boyd-Roosevelt Road (a 50-mile corridor running the length of the Canal) within the Panama Canal Watershed. This new subcategory was introduced in the Legislature under the industrial-commercial code. This new subcategory, had it been created under the proposed legislation, could have had serious consequences on the PCW. In essence, the proposed legislation would have opened a vast area within the PCW to industrial-commercial development exposing it to serious environmental threat and putting in jeopardy efforts to sustainably manage the Watershed.

With IRG technical support, the CICH's Permanent Technical Committee (PTC) recommended the reorientation of draft of Bill No. 96 toward a long-term process to include the regulation land uses in the urban development areas. The PTC's recommendations to the Commissioners, presented in a technical report, focused on the need to regulate Law 21, through detailed zoning in the "yellow" (urban use) areas shown in the Regional Plan maps. The PTC's recommendations took into consideration what Law 21 already establishes as well as the criteria established in the Urban Development Plan for the Metropolitan Areas of the

³ Passed by the Panamanian General Assembly in 1997, Law 21 establishes the Regional Plan, as a tool for land use management in the PCW.

Atlantic and the Pacific prepared by MIVI.

The PTC members offered their technical expertise to produce the normative document and worked closely with MIVI staff on this task. IRG provided legal assistance to the PTC to prepare a document that served as input to reformulate Bill No. 96.

Key results of this activity:

- Legislator Ameglio, the original sponsor of the proposed Bill (No. 96), reoriented the proposal toward the regulation of land use in the urban development areas and the restriction of the industrial-commercial area along the Boyd-Roosevelt Road. He understood the implication of his initial proposal and now aware of the need to protect the environment in the process of promoting economic growth. Our efforts also made the Permanent Technical Committee (PTC) aware of the critical importance of developing and implementing regulations for Law 21.

IMPLEMENTATION OF LAW 21 REGULATION (ARI/CICH)

As a result of the effort to recast Bill 96, the CICH's PTC recommended, in a technical report, to the CICH Commissioners that implementing regulations be developed for Law 21. The technical report further recommended that the implementing regulations focus on detailing the duties and responsibilities of the Panamanian public sector entities (viz. MIVI, MIDA, ARI, ANAM and the ACP) involved with management of the reverted territories. The PTC further recommended that the implementing regulations include a detailed zoning of the "yellow areas" (urban areas) illustrated in the Regional Plan maps. Through a series of focus groups with managers and technicians of all participating Panamanian, and plenary sessions in which all of the cognizant institutions were represented, IRG developed a draft of the implementing regulations. This draft will be vetted during the Bridge Contract⁴ and validated by all governmental institutions to produce a final draft bill to be presented to the CICH Commissioners and later to the civil society prior to be presented to the Legislative Assembly for approval. Inputs from this consultative process will be incorporated into the final draft legislation.

IRG took the initiative to bring the GreenCom Environmental Education project into this process. GreenCom furnished a consultant to develop a plan for the public vetting of the draft regulations.

The task was completed and the implementing regulations were developed with the active participation of all cognizant Panamanian entities. However, the exercise was not without its difficulties. Finding a CICH member organization willing to step forward to "champion the process" proved to be an onerous task, and some of the participating organizations concentrated their initial efforts on "maneuvering for bureaucratic territorial advantage". It is our opinion that these difficulties were part of a normal process of building institutions in a

⁴ The Bridge Contract is the funding mechanism used by USAID-Panama for IRG to complete activities during the months of October 1st – December 31st that were begun under EPIQ/IRG and were incomplete by September 30th, 2002 to help consolidate the role of the CICH

dynamic setting. We believe that the CICH, as an organization, was strengthened by the healthy debate carried out by a sub-set of its members in producing the draft of the implementing regulations.

Key results of this activity:

- CICH member institutions reached a consensus on implementing regulations for Law 21.
- Role of the CICH, especially the Executive Secretariat, CICH as coordinating mechanism for collaboration and resolution of inter institutional conflicts was strengthened.
- Participating CICH institutions understand each other's mission within the PCW and have been successful at clarifying roles and responsibilities.
- A set of implementing regulations was drafted.

URBAN AND RURAL MICRO ZONING NORMS AND STANDARDS (MIVI)

As part of the implementation of Regulation of Law 21, EPIQ/IRG supported MIVI in the revision and elaboration of new urban and rural micro zoning norms and standards related to MIVI's activities in the Eastern Region of the Panama Canal Watershed. Our work also included a capacity building implementation. Through "on-the job" training by international and national IRG consultants and through a two-day workshop, we trained MIVI personnel on the development of norms and standards.

As a part of this activity IRG experts revised existing and elaborated new urban micro zoning norms and standard in the counties of Chilibre and Las Cumbres. Various meeting with MIVI and other CICH member institutions were held to consult existing regulations that could complement or generate conflict with MIVI's norms and standard. The products from this assistance during the Bridge Contract, will be consulted one more time with the PTC and also with local government. Once finalized it will be converted into a Ministerial Decree and will become an integral component of the Regulation of Law 21 as well as an important process of institutional strengthening and of coordinating efforts between MIVI and other government institutions such as MIDA, ANAM, IDAAN and Local governments.

Key result of this activity:

- Enhanced awareness and acceptance by CICH member institutions of the importance of MIVI's role in assuring the sustainable management of the PCW.
- Strengthened institutional capacity to elaborate norms and standards for micro zoning considering water resources management a key concern.
- Elaborated a replicable model for development of micro-zoning norms and standards.

CLEAN PRODUCTION – ELECTRO-PLATING, LEATHER TANNING, CEMENT PRODUCTION, POULTRY PRODUCTION, SWINE PRODUCTION AND NON-METALLIC MINING SECTOR (ANAM)

Panama's Environmental Law requires that ANAM regulate the environmental impact of private sector activities. When this Task order began (August of 1999) no regulations existed neither to implement the components of the law relating to sector specific pollution/contamination norms and standards, nor to encourage adoption of clean production technologies. To address this vacuum ANAM launched a two-part strategy: (1) adopt, on a temporary basis, norms and standards that had proven successful in other countries; and (2) develop norms and standards that were specific to the Panamanian context, that would replace the borrowed international standards.

IRG focused on assisting ANAM with the second part (development of new norms) of its two-track strategy. To that end, we designed, in close collaboration with host country counterparts, an organizational infrastructure for the development of new norms. This infrastructure consisted of an inter-institutional technical committee that assisted in the development of the draft norms, a process of consultation in which the private sector actively participated in the development and review of the norms, and an inter-institutional executive committee that reviewed and recommended approval of the norms to the ANAM Administrator. This recommended structure was adopted formally by ANAM with the issuance of Decree #58 (procedures for the development and adoptions of environmental norms and standards) in March of 2000.

Subsequently, we provided technical assistance to ANAM and the private sector to carry out a series of environmental audits in six priority sectors (viz. electro-plating, leather tanning, cement production, poultry production, swine production, and non-metallic mining). The environmental audits were conducted with the voluntary participation of private operators in each of the sectors. These audits produced two sets of reports; one set of proprietary information for volunteer participants regarding the status (in environmental and economic terms) of their production systems with recommendations for upgrades, and a second set for ANAM on the generic status (in environmental terms) of each of the six sectors.

The generic reports served as the basis for a series of meetings between members of the Inter-Institutional Technical Committee and private operators to develop norms specific to each of the six sectors. The products of these sessions were, in turn, presented to the Inter-Institutional Executive Committee for review. Subsequently, the Executive Committee presented the draft norms to the ANAM administration for action.

Key results of this activity:

- Creation of the Inter-institutional Technical Committee for Environmental Norms and Standards and Clean Production.
- Creation of an executive committee for Environmental Norms and Standards.
- Creation of a participatory process for the design of Environmental Norms and Standards.
- The generation of draft Norms and Standards for six sectors.
- The recommendation of clean production technologies adopted by firms that participated in the environmental audits.

- The adoption by ANAM of an IRG recommendation to include a Clean Production Plan as part of Environmental Management Plan requirements for private operators.
- The Enhanced awareness in the Panamanian private sector, and Panamanian society writ large regarding the importance and benefit of Clean Production technologies.

FEASIBILITY STUDY OF FISCAL INCENTIVES TO PROMOTE CLEAN PRODUCTION INITIATIVES (ANAM)

IRG worked with a counterpart group (FUPASA) formed by the ANAM-led Inter-institutional Committee for Clean Production to study the feasibility of developing, within the fiscal policy and legal framework of the country, fiscal incentives to promote the use of clean production technologies. The results of this feasibility study were presented to ANAM for review and consideration with an eye cost toward developing legislation to promote the adoption of clean technology. Examples of clean production incentives included, tax reductions for purchase and application of clean technologies and a tax reduction on the export of “green” products produced in Panama.

These types of fiscal incentives that grow out of our feasibility work and that could be offered to industries that:

- Implement a Clean Production Program.
- Improve production and processing technologies and systems to comply with the maximum permissible pollution/contamination limits before the deadline established by the existent regulations.
- Improve production and processing technologies to parameters beyond those established by the existent regulations or in a shorter period of time.
- Implement environmental management systems (ISO 14000) endorsed by the government or an internationally accredited body.

Key results of this activity:

- Our recommendations on “Green Labeling/*Eco-etiquetaje*” (establishment of guidelines certification of environmentally clean processes and products) program is being implemented through the National Environmental Program.
- ANAM is currently in the process of establishing the rules for certification of environmentally clean processes and products.
- ANAM is currently studying the possibility to draft a Bill for clean production incentives related to waste water.

COST-BENEFIT STUDY TO SUPPORT A DRAFT BILL ON FISCAL INCENTIVES TO PROMOTE CLEAN PRODUCTION (ANAM)

As a result from the previous activity, *Feasibility Study of Fiscal Incentives to Promote Clean Production Initiatives*, ANAM opted to follow one of the recommendations that was presented in the final document and supported by the private sector: fiscal incentives. However, the

Ministry of Economy argued that such initiative had to be supported by a cost-benefit study. ANAM requested that IRG to provide assistance to conduct such a study. Preliminary results suggested that industry complains with wastewater norms and standards established by ANAM, prior to the dates indicated by Law, is having economic benefit to the State. This document is currently under review by ANAM and the members of the Clean Production Technical Committee and the final version is expected to assist ANAM in providing the basis to support the formulation of the fiscal incentive law to be proposed.

Key results of this activity:

- This study will set the basis for a draft bill related to clean production for industries and their management of wastewater and it may be used for other scenarios related to fiscal incentives and clean production.

TRAINING /CAPACITY BUILDING ACTIVITY TRACKS

The **training and capacity building activities** featured training seminars for the Panama Canal Authority middle level managers on watershed management, a team-building workshop for members of the CICH's Permanent Technical Committee (PTC), and a training seminar for ARI staff on marketing of properties in the reverted areas. They also included an executive conference with top managers of three important watershed management experts for ACP middle level managers and other watershed management specialists of the country, a series of workshops on the clean development mechanism and a project design for the public and private sector involved in global climate change activities that had as result installed local capacity. CICH Structure, Function and Procedures (ACP/CICH) included CICH administrative structure and a business plan (financial sustainability).

CICH STRUCTURE, FUNCTION AND PROCEDURES (ACP/CICH)

a. CICH ADMINISTRATIVE STRUCTURE

Given that the CICH was created with the passage of Law 19, and became functionally operational six months after this Task Order began, the Commission needed support across a wide range of institutional matters (e.g. formulation of policies, procedures, methodologies, and its structural make-up, with roles, responsibilities, and authorities) to launch it on a sound footing. Activities under this task included the development, in mutual consultation with the CICH and its participating entities, of a *mission statement* which clearly defines the role of the CICH, in accordance with its enabling legislation, of the by-laws, rules, regulations, and policies, for the proper functioning of the CICH, and for its operations vis-à-vis any internal committees or councils, including the criteria for selection of members and staff; and of an operation plan for its initial period of operation (1st year), and strategies for its implementation, along with means for measuring the performance of the CICH. The final

document (The Role of CICH⁵) was presented by IRG to the Mission and to counterparts in September 2000.

Key results of this activity:

- While making some adjustments in detail, the CICH, ACP and USAID/Panama adopted the recommended financial sustainability plan that IRG developed. This plan evolved into to a Trust Fund, jointly financed by USAID and the ACP to support sustainable development activities in the PCW. In addition, early recommendations on the structure of a coordinating mechanism, again while modified to fit the Panamanian context, served as a basis for the design of the CICH. Further to the point, in 2002, the CICH Executive Secretariat asked /IRG assistance to review and revise the mission, vision and strategic planning of the CICH in the context of development of an annual plan. This exercise was carried out to fine tune the CICH after its initial year of operation in order to improve its operational effectiveness for the future.
- In a public meeting held in October 2002, the ACP Administrator, declared that the “CICH is working; that it is fulfilling its anticipated role”. This is solid testimony regarding the results of our institutional building efforts.

b. CICH BUSINESS PLAN (FINANCIAL SUSTAINABILITY)

As noted above, EPIQ/IRG evaluated alternative means by which the CICH can sustain itself financially within the framework of its enabling legislation. Included among the alternatives considered were establishment of a trust fund, financing from International donors, cash transfers from the ACP, contributions from other CICH members, and a goods and services (e.g. fees and permits, engineering services) marketing campaign. ACP cash transfers will underwrite the operating costs of the CICH for the foreseeable future, and as mentioned previously, a trust fund has been created to programs and projects for sustainable watershed management activities.

Key result of this activity:

- The establishment of a trust fund for the funding of watershed management activities in key sub watershed.
- The establishment of a network of key institutions (local and international organizations) with projects within the PCW.
- The activities (projects) to be finished will be defined by the participatory watershed planning process.

WATERSHED MANAGEMENT SEMINARS – BASIC INTRODUCTORY COURSE (ACP)

⁵ Some chapters and annexes in this document are the Actual State of the PCW, Analysis of the Legal and Policy Needs, Analysis of Inter-Agency Watershed Management Entities, a Preliminary Strategy for Integrated Management of Panama Canal Watershed, Proposals for the Vision and Mission of CICH, its First Year Strategic Planning, its Financial Sustainability, an Environmental Information System, its Statutes, and its Roles and Functions.

At the expressed request of USAID/Panama and in close collaboration with counterparts, IRG designed and presented a series of seminars on the basics of watershed management to technicians and mid-level managers of the ACP. These seminars were designed to enhance the knowledge of ACP personnel regarding the fundamentals of watershed management so that the Canal Authority could be more prepared to carry out its responsibilities regarding the sustainable management of the PCW. Feedback from ACP senior managers and questionnaires submitted by participants indicated that the course was well-received and that it added value to the ACP's efforts to meet its mandate under Law 19 of protecting the Canal Watershed.

Key result of this activity:

- Originally, we planned for one four-hour seminar to be presented to two groups of participants each numbering approximately 25 participants. However, given the success of the initial round and the demand expressed by the ACP for additional training, we carried out a second round (two seminars) of “Basics of Watershed Management” seminars. Approximately 75 ACP employees attended the second round. ACP feedback indicated strongly that these training sessions contributed to enhancing ACP staff capacity regarding watershed management.

WATERSHED MANAGEMENT COURSE FOR ENVIRONMENTAL MANAGEMENT UNITS OF CICH MEMBER INSTITUTIONS (CICH)

IRG assisted strengthening the institutional capacity of the CICH by providing technicians from the member institutions with unified analytical tools to assess the appropriateness and viability, in environmental and economic terms, of existing and proposed interventions (public and private investments) within the PCW. We did so through the design and implementation of a multi-module course on watershed management, for technical staff of CICH member institutions. The course emphasized the biophysical, social and economic dimensions of watershed management. It also featured the details and benefits of a participatory process (i.e. active involvement of all stakeholders) to watershed management.

The course was prepared by an international expert in Watershed Management, a local specialists in Natural Resources, Sociology, and Economics, and members of the CICH Permanent Technical Committee. It consisted of three related modules and both theoretical concepts and practical application of watershed management. The modules were scheduled to minimize disruption of normal work schedules (there was at least a month period between modules) of the participants.

Key results of this activity:

- The participating institutions strengthened their professional relationship as members of the PTC, identified the need to include other institutions in the PTC such as IDAAN, Ministry of Health and Ministry of Education, elaborate a participatory

action plan for critical sub watersheds, regulate Law 21, and establish water quality parameters for monitoring in the PCW and formalize the strategic plan of CICH and the structure and functions of PTC. These needs have turned into ongoing projects and activities within CICH.

- CICH PTC members developed among themselves a sense of trust and a programmatic working relationship.

GUEST LECTURE SERIES FOR ACP SENIOR MANAGERS (ACP)

As mentioned earlier, protection and rational use of a watershed is a new undertaking for all levels of the ACP, including senior managers. While upper level decision-makers are familiar with the principles of watershed management and are well versed in developing and implementing multi-component plans, responsibility for the sustainable use of the resources within the PCW is a new challenge.

EPIQ/IRG developed a *Guest Lecture Series* to provide ACP senior managers and the PTC members with the opportunity to learn from the experiences of senior officials of organizations with world-recognized reputations on watershed management. The visiting officials were Senior Managers of the Tennessee Valley Authority (USA), the Cauca Valley Corporation (CVC-Colombia), and the Chesapeake Bay Program (USA). The focal point of the event was a half – day seminar in which representatives of these organizations shared experiences on their approaches to watershed management. The presentations were followed by an extended period of questions and answers as participants probed into particular dimensions (e.g. financial sustainability, interactions with stakeholders, and relationships with other government entities) of the presentations made by the guest lectures.

Key results of this activity:

- As with the basic watershed management course, feedback from participants clearly suggested that this activity contributed to the ACP understanding of dimensions (public involvement, stakeholder relations, financing) of effective watershed management.

WATERSHED MANAGEMENT MODULE DESIGN FOR THE DIVISION OF TRAINING AND DEVELOPMENT (ACP)

As part of a focused effort to alter its corporate culture and operate in a more entrepreneurial fashion, the ACP is offering a series of courses that provide in-service training to Canal Authority staff on a range of topics relevant to the ACP's enhanced mission (viz. management of the Canal watershed in addition to management of the Canal proper). In discussions with

USAID and IRG representatives, senior ACP officials noted their interest for natural resource management/watershed management-training modules to be developed and incorporated into an integrated management training program.

In response to this request, IRG developed two training modules that examine the social, environmental, economic and political aspects of watershed management, as well as negotiation and conflict resolution concepts, and team building skills. The didactic materials for the module emphasize practical applications and field based experiences. They were designed for two audiences: technicians and supervisors/professional staffers. They have been adopted by the Canal Authority and will become a part of the curriculum of the ACP's Integrated Management Training Module.

In developing the module, EPIQ/IRG specialists collaborated closely with Panama Canal Authority's Environmental Management Division and the Training and Development Division. The modules were designed for ACP staffers to serve as facilitator using a teacher's manual guide, a series of power point presentations and exercises based on PCW data.

Key results of this activity:

- By providing a technical training vehicle for ACP employees, this curriculum design work will have a long-term impact on helping the Authority carry out its new mission – the sustainable management of the water resources in the PCW. It will also contribute to changing the corporate culture of the Panama Canal Authority.

CUSTOMER SERVICE (ARI)

EPIQ/IRG provided technical assistance to improve ARI's capacity to identify, engage, and "close deals" with customers in the marketing and promotion of reverted properties. Training and assistance were tailored to specific needs identified by ARI. Activities included:

- Training of ARI managers and staff on customer services;
- The development of customer service guidelines (e.g. phone protocols, response protocols, and guidelines to track interactions with potential customers);
- A lists of potential clients (maritime and tourist);
- Assistance in the preparation and presentation of specific projects (Punta Pulip, Telfers, and others);
- Assistance in preparation of websites for presentation of information about potential projects; and
- Training in the development and maintenance of websites.

Key result of this activity:

- Participant feedback indicated that the training sessions have helped, in a direct way, further ARI's efforts to utilize the reverted territories in ways that are economically profitable to the country and are simultaneously environmentally beneficial.

GLOBAL CLIMATE CHANGE (ANAM-FUPASA)

At the request of USAID/Panama, IRG included a Global Climate Change initiative in our work program. In close collaboration with ANAM and the Panamanian Foundation for Environmental Services (FUPASA), IRG designed and implemented a series of workshops, interspersed with targeted technical assistance, related to private sector participation in the international carbon offset market. The training and technical assistance focused on, *inter alia*, definition of local product(s) (the assets Panama brings to the table), definition of the market (who has credits to sell and what are the particularities of those markets), and design of “bankable” projects.

Participants in the workshop series included ANAM and FUPASA staff as well as other Panamanian government institutions and private commercial operators of the power (electricity) and non power (e.g. forestry, agriculture) sectors. Some of the deliverables were a national portfolio of CDM projects for Panama, a marketing plan and a financial plan for FUPASA and three manuals related from the formulation of CDM projects to their certification and adjudication of such projects.

Key result of this activity:

- As a result of the training (capacity building) of local operators in the carbon offset market and in the design of projects for that market Panama submitted 13 project profiles to the Netherlands through a bi-lateral CDM agreement. Three of the profiles were selected for promotion of the international carbon offset market.

PLANNING ACTIVITY TRACK

The *planning* initiatives included formulation of a First Year Action Plan for the CICH, assistance to ARI in the development of a five-year infrastructure plan (with an emphasis on environmental infrastructure) for the reverted areas, and a series of preliminary environmental audits of enterprises in specified industrial sectors. These audits have contributed/have the potential to contribute to the investment plans of private entrepreneurs. Another important activity related to planning in the watershed was the bottom-up approach to design action plans in selected sub-watersheds which has become an area of action for other projects and programs.

URBAN PLANNING (ARI)

This component of our Task Order aimed to provide environmental and economical assistance to the professional staff of ARI in the preparation and implementation of methodologies to assure sound use of land in the reverted areas dedicated to urban development.

IRG staff collaborated with ARI personnel closely to identify the Authority's critical needs regarding urban planning in the reverted areas. This collaborative effort resulted in various areas of cooperation in urban planning and economics such as the following:

- An analysis, employing the developed methodology, of the spatial design and zoning codes in the reverted areas.
- An analysis of the existing population densities in the civil and military parts of the reverted areas, taking into account economic indicators (land values, cost of infrastructure, environmental value, vistas, etc.) to determine the type of density and standards of development applicable to such locals.
- Identification of the needs for community services in both the military and civil locals, in light of the proposed new uses of the areas.
- A proposal for the Dirección de Planificación Técnica of ARI in the aspects of planning and urban design implied in the negotiations of contracts and projects that occur during the period of the consultancy.
- Measurements of the impacts of the development of the reverted areas on urban development in the metropolitan area.
- Identification of problems, obstacles, advantages, and development opportunities for spatial use and development of reverted areas.
- Identification of the infrastructure needed to support the disposition and envisioned development of reverted properties.

Subsequently, IRG engaged a team of national and international experts to work with ARI Staffers to address these issues. The results of this concentrated effort were A) a Final Phase Development of a Five-Year Infrastructures Plan for the Canal Zone and a B) a Regional Plan Implementation.

FINAL PHASE DEVELOPMENT OF A FIVE-YEAR INFRASTRUCTURE PLAN FOR THE CANAL ZONE (ARI)

During the course of this Task Order, EPIQ has provided Phase technical assistance to ARI's Directorate for Technical Planning to prepare a *Five-Year Infrastructure Plan for the Canal Zone*. The Plan included an analysis of the infrastructure needs, based on established criteria, and mechanisms for financing these needs over a five-year period. EPIQ assistance included an analysis of potable water supply, sewerage collection and treatment, drainage, and solid waste collection and disposal. It also included an analysis of the economic feasibility of alternative investment possibilities. In carrying out this analysis care was taken to consider economic return on investments within the context of environmental sustainability. Concurrently, ARI addressed other infrastructure issues, including, road systems, electrical power supply, and telecommunications.

EPIQ/IRG organized a day workshop with ARI representatives and other government institutions and private sectors for the consultation of this document. Additionally, EPIQ/

IRG assisted in the preparation and production of the final Infrastructure Plan for the period 2002 - 2006.

REGIONAL PLAN IMPLEMENTATION (ARI)

The Regional Plan for the Development of the Inter-Oceanic Region became law in July 1997. This law establishes a long-range framework for land use within the Panama Canal Watershed. The intent of the law is to assure protection of the water resources for Canal operations. The law identifies the areas within the watershed that are appropriate for various categories of economic activities based on compatibility with this objective and with “sustainability” based on physical criteria such as soil, slope, and rainfall. Policies and regulations needed to be developed to make the Regional Plan an effective framework for land use planning and zoning decisions. A number of Panamanian institutions have been involved in the decision-making process to implement the Regional Plan. EPIQ/IRG provided assistance to ARI, ANAM, the Ministry of Agricultural Development (MIDA), the Ministry of Housing (MIVI), and ACP in the formulation of detailed implementing regulations for this law. In the main the regulations focus on institutional roles and responsibilities for Regional Plan implementation.

In developing a draft set of regulation, IRG staff, in close collaboration with counterparts carried out a series of activities that were necessary building blocks to arrive at the final product. These activities included (1) an analysis of existing policies or programs that constitute an obstacle to compliance with the Regional Plan; (2) identification of alternatives for environmental sustainability; (3) identification of tactics to overcome constraints to Regional Plan implementation; (4) identification of opportunities for eco-tourism within the Regional Plan; (5) development of milestones to measure compliance with the Regional Plan; and (6) development of a strategy and recommendations for the assignment of institutional responsibilities for Plan implementation.

Key results of this activity:

- Established analytical basis for sound development of urban areas in the PCW.
- Finalized detailed urban infrastructure plan
- Set the basis for efficient management of plans

SUB WATERSHED MANAGEMENT PLANNING (CICH)

An item in our initial Work Plan called for development of a comprehensive strategy for the management of the entire PCW (over 1 million acres). In discussions with counterparts IRG suggested that perhaps a more effective approach would be to develop strategies, with subsequent actions plans, for discrete sub-watersheds. We advocated that through a very participatory process, with active local stakeholder involvement, the focus should be on developing local watershed management solutions to local watershed problems. Concentrating on sub-watersheds would direct the energies of local residents to issues that were meaningful to them in very immediate ways—the issues would be relevant and the

solutions would not only protect the resources in the sub-watersheds but would also direct improvements to local standards of living and quality of life. In a phase, focusing on sub-watersheds, and generating local solutions for local problems made watershed management meaning and relevant to residents of the PCW. The counterparts, especially the CICH, and the client (USAID) agreed with this approach. Accordingly, IRG pioneered this participatory approach to watershed management in Panama. We introduced it as a part of the multi-module Watershed Management Course for managers of CICH member institutions, local government representatives and other governmental institutions. In close consultation with the counterparts, we subsequently, took the participatory “bottom-up” methodology to the field and applied it in the sub-watersheds of Los Hules-Tinajones, and Caño Quebrado.

EPIQ/IRG assisted with the bottom-up, sub-watershed planning process. In collaboration with the CICH’s Permanent Technical Committee, we selected two sub-watersheds, Los Hules-Tinajones and Caño Quebrado that were under stress and in need of remediation and that have relatively simple socio-economic structure. EPIQ consultants developed two diagnoses, a participatory (with the communities of both sub watersheds) and a technical one (with secondary information and water quality samples of key sites within the watersheds). Information such as that gathered by the PMCC and the PAM (Planes Ambientales Municipales) and other information generated with USAID report provided the foundation for the identification of critical issues within the sub-watershed.

EPIQ/IRG facilitated the conformation of a Local Commission made up of local stakeholders (business leaders, residents and small producers), and a Local Technical Committee (local governmental officials, field representatives of CICH and non-CICH organizations). A series of meetings with the Local Commission and field visits to the communities were held for the development of the participatory diagnosis. As a result of these meetings, the most important problems related to water quality were identified by local residents.

During the Bridge Contract, the technical and the local diagnoses will be consolidated into one assessment of the sub-watersheds. This single assessment will be a dynamic document subject to period updates as conditions change over time. It will be prepared in close collaboration with the local stakeholders and key technical staff from local government agencies. Subsequently, we identified with local commission (i.e., local government officials, business leaders, residents, and field representatives of CICH and non-CICH organizations) the most critical issues threatening the health of the sub-watershed. The exercise will also include the development of an action plan to address the issues identified. A centerpiece of this activity will be a series of meetings and with local stakeholders and change agents (CICH and non-CICH member field representatives) that will include training on watershed management / applied sub-watershed planning. PTC representatives will participate at different instances of this activity as a learning process.

This bottom-up approach to planning is allowing CICH to complement broad-based macro-watershed planning with discrete mini-plans that are financially and practically feasible to implement. Once they are completed, they will provide the CICH Commissioners, the CICH Secretariat and the CICH Permanent Technical Committee an opportunity to learn

participatory planning methods at the local and municipal levels.

Key results of this activity:

- Pioneered and won Panamanian acceptance of focus on sub-watershed as effective planning unit
- Pioneered and won acceptance of participatory approach to effective watershed management planning
- Empowered local communities to develop local watershed management plans and interacted with regional and national authorities to implement such plans
- Established prioritization process for selection of sub-watersheds by CICH

CARBON SEQUESTRATION ESTIMATES FOR THE LAND USE ASPECTS OF THE PANAMA CLIMATE INITIATIVE (ACP)

EPIQ/IRG worked together with the consultant from Oak Ridge National Laboratory (ORNL) and the Remote Sensing Unit personnel of the Panama Canal Authority (ACP) to develop estimates of carbon sequestration for potential projects in ecologically important areas of the Eastern Region of the Panama Canal Watershed (PCW). The boundaries of the project area were 339,649 hectares, decided in consultation with Remote Sensing Unit personnel.

The primary focus of this task was the projection of carbon emissions avoidance or removal based on hypothetical reforestation (with native species) and forest protection projects. EPIQ/IRG and the generation of a forestry base line within the Eastern Region of the PCW for CDM.

Key results of this activity:

- advice on the development of likely land-use change scenarios for use as a business-as-usual baseline against which to measure additional carbon conserved or sequestered by a project.
- estimates of the carbon content of different land uses with the scenarios of land-use change.
- projections of carbon emissions avoidance or removal based on hypothetical reforestation (with native species) and forest protection projects.
- a brochure for potential investors, developers of reforestation, protection programs and academia (together with the consultant from ORNL).

This activity is closely tied to the Global Climate Change activity with FUPASA.

COORDINATING MECHANISMS ACTIVITY TRACK

Inter-institutional cooperation initiatives included development of a matrix to demonstrate the

gaps, overlaps and “gray” areas that exist among CICH members with respect to their roles and responsibilities regarding management of the Canal Watershed. The matrix served as a basis for developing an inter-institutional **coordinating mechanism** between ANAM and the ACP in reviewing Environmental Impact Assessments that included an initial screening mechanism proposed the EPIQ/IRG and is now part of that agreement.

INITIAL SCREENING MECHANISM TO IDENTIFY POTENTIAL ENVIRONMENTAL IMPACTS (CICH)

In November 2000, EPIQ/IRG in collaboration with CICH, started the process of defining the gaps and duplications in responsibilities among CICH member institutions. This process also led to the identification of the need for inter-institutional coordinating mechanisms as a means to address some of the inconsistencies encountered. To this end, EPIQ/IRG specialists designed a mechanism, to guide the process identifying potential of environmental impacts for proposed PCW projects. Two inter institutional agreements between ACP and ANAM were proposed:

1. to design and put into practice a preliminary filter for Environmental Impact Studies and,
2. to determine the issuing of water concessions within the PCW.

The key purpose of these agreements were to clarify the roles and responsibilities of the two organizations on a range of issues, the most important of which is the review and approval of Environmental Impact Assessments for proposed watershed investments and water concessions in the PCW. The development and acceptance of this agreement, by both organizations, would have served to reduce inter-institutional conflict, fill current gaps in organizational responsibility, and eliminate existing task area redundancies.

The Panama Canal Authority asked to suspend the elaboration of these two agreements given that ACP needed more internal consultation after the public presentation of the Environmental Impact Statement Manual issued by ANAM in the interim.

Key result of this activity:

- Basis for effective coordination on EIA established. Execution dependent upon resolution of counterpart inter-institutional dispute.

INFORMATION MECHANISM ACTIVITY TRACK

Information dissemination/technology transfer efforts that centered on the best approach for the establishment of an environmental information center for the CICH EPIQ/IRG promoted the idea of starting the information sharing process through the development of a web page.

ENVIRONMENTAL INFORMATION CENTER (CICH)

Prior to the creation of the CICH, many Panamanian entities launched data collection initiatives for the PCW. As a consequence, there exists multiple data bases, of vary degrees of quality, on a variety of PCW environmental management topics. In an earlier phase of this Task Order, EPIQ conducted an inventory and assessment of existent databases. EPIQ, in close cooperation with host country counterparts, also carried out a preliminary assessment of the CICH's environmental data needs as well as data requirements of CICH member institutions. A proposal presented to the CICH by the Louis Berger Group on recommendations to continue with the Monitoring Program also adds to the universe of information regarding an Environmental Data Management Mechanism for the PCW.

EPIQ/IRG worked with the Canadian Agency for International Development in the establishment of an Environmental Information Center (EIC), within CICH. The concept was that CIDA would provide technical assistance to: (1) complete the task of defining the size, and associated costs and operating modality of the EIC; (2) formulate recommendations on CICH member institution responsibilities regarding data collection and input to the system; (3) developing information sharing protocols; and EPIQ/IRG would provide technical assistance to: (1) formulate recommendations on hardware and software needs; (2) develop a Web site; and (3) train its personnel through existing local courses. EPIQ/IRG achieved its results successfully. To date, CICH is providing information to CICH members and to projects funded by USAID and other agencies related to the PCW. This EIC is also assisting in coordinating activities within the PCW with the purpose of finding synergies.

Other activities under this task involved the development of CICH web page for the purpose of dissemination of the information to the general public. It also provided technical assistance, hardware and training to key personnel in specialized software including server management, key web software and others for the management of the information center.

Key results of this activity:

- Data on state of the PCW centralized and organized
- System put in place to generate access and use data for the sustainable management of the PCW
- Important information on the PCW readily available to the general public through the Web and other dissemination mechanisms through the established Information Center.

HYDRO-METEOROLOGICAL DATA BASE AND FIELD WATER QUALITY COLLECTION (ACP)

At the request of the Panama Canal Authority (ACP), and with the concurrence of USAID/Panama, EPIQ/IRG provided technical assistance to review and evaluate the ACP's hydro-meteorological monitoring system. The initial phase of this assistance, carried out in early December, 2000, focused on: (1) reviewing the existing and proposed network of stations for collecting hydro-meteorological data; (2) assessing proposals/suggestions for location of a range of water sampling stations for hydro-meteorological data; and (3)

determining, in close consultation with appropriate ACP staff, the types, frequency, and location of data collection. The types of data to be collected included, falling stream flow, suspended sediment concentrations, water quality, wind speed and direction, temperature, atmospheric pressure, evaporation, humidity, and solar radiation.

The principal conclusions of Phase I of this task noted that quality of the work performed by the ACP unit responsible for collecting hydro-meteorological data is well above the norm. The Unit is staffed with well-trained technicians who carry out their responsibilities in a thoroughly professional manner. This report also noted that the monitoring equipment at most stations is adequate for providing the data necessary for ACP's purposes and that the distribution of monitoring stations in the Panama Canal Watershed's (PCW) Eastern Region, as well as those proposed for the new, Western Region of the PCW, is excellent for both hydrological and environmental monitoring purposes. Finally, it commented on administrative issues within the ACP that are a constraint to efficient operation, as well as a need to develop protocols for water quality sampling and train ACP staff in the use of these protocols.

Based on the recommendations presented in the Phase I report, EPIQ/IRG provided technical assistance and support to improve field operations planning, water quality monitoring, and data base management for hydro-meteorological activities. The results from the second activity was a Field Manual for the Collection of Surface Water Samples that included preparation for the field, field parameters measurements, sample collection and quality control and quality assurance. Additional information of laboratory and field equipment was also provided.

Key results of this activity:

- The coordination between two divisions belonging to departments within the ACP, the Division of Hydrology and Meteorology and the Division of Environmental Division.
- The current use of the field manual by the Water Quality Unit of the Environmental Administration Division.

LESSONS LEARNED

At the outset we noted the critical events (viz. transferred of the Canal, national elections) taking place in the country as we launched the Task Order. These events clearly impacted the start up of our work as well as its flow over the three-year Task Order period. These events represent, in part, the socio-cultural context in which this technical assistance effort was designed and carried out. Understanding and accommodating to this cultural setting (e.g. the inter-institutional dynamics of international and national political events in which the country was absorbed, the institutional dynamics of the Panamanian entities involved with the PCW management and the culturally defined idiosyncrasies of Panamanian society) are important ingredients of success. With this in mind, we believe there were a series of lessons learned during this project, all relative to one fundamental principle-- people and their active participation in the decision-making are critical to success of development efforts. These

lessons may benefit the design and implementation of future developmental initiatives:

- **Sensitivity to sovereignty**
- **Institutional behavioral changes**
- **Timing**

SENSITIVITY TO SOVEREIGNTY

By **sensitivity to sovereignty** we mean an understanding of the processes of “nationhood” taking place in the host country. In the context of Panama this means awareness of the heightened sense of independence that accompanied the transfer of the Canal to Panama after 90 years of ownership by the United States. The transfer of the Canal represented a reduction in Panamanian dependence on the U.S. and a very important step toward mature statehood. Panamanian sensitivities about independence were at the surface as we initiated this Task Order, and there was clear attitude among counterparts that “management of the PCW was their challenge and that they knew how to address it.”

As we undertook our work we had to be extremely aware of this reality. We had to tailor our approach and our technical recommendations to take advantage of the energy it created and avoid being at cross-purposes with it. To illustrate, our Task Order emphasized, *inter alia*, the formulation of a proposed structure, functions and operating procedures for the CICH. Prior to our arrival in country, ACP staffers had carried out some preliminary work on these issues and they demonstrated a clear sense of ownership of the process.

To have developed alternative proposals without regard to work done by the counterparts and to have ignored their “sense of mission” regarding the CICH would have frustrated our technical assistance efforts. Accordingly, we adopted a policy of close collaboration and complete disclosure. We submitted drafts of organizational schemas and associated recommendations to counterparts for review and discussion. Subsequently, we included their observations and inputs into final documents that we submitted to both USAID and the counterparts. The process worked. Many of our suggestions were adopted, and we added value to an effort marked by clear counterpart ownership.

INSTITUTIONAL BEHAVIORAL CHANGE

Institutional behavioral change is **generally a slow process** achieved normally with time and persistent effort. In bringing about such change, long-standing vested interests must recede, new visions must be formulated, new targets developed and new mission and new relationships formed. The rate and degree of such change is dependent upon variety of factors including interpretation of formally assigned roles and responsibilities, pursuit of “bureaucratic turf”, tradition or inertia, inter-personal and inter-institutional inter-action and recognition, by counterparts, that change is desired and/or necessary.

Our contract emphasized institutional strengthening (read formulation and start up) of the

CICH. This could not have done without institutional behavioral change within and among the institutions that make up the Commission. Our approach here was to focus on the Permanent Technical Committee (CTP—Spanish acronym) of the CICH. This body provided representation of all CICH member institutions at a relatively high administrative level. With this group we carried out seminars on the development of a vision and a strategy for the CICH Executive Secretariat and on internal working procedures for the CICH. In addition to sharing our work on CICH structure and function with ACP counterparts, as noted above, we consulted with CTP members on the same topics. We designed and carried out a multi-module training course on Watershed Management for CTP representatives and included the CTP in all of our activities related to sub-watershed planning.

Every one of these activities, plus the set of actions related to formulating the implementing regulations for Law 21, provided the CICH member institutions the opportunity to understand the new institutional reality for management of the PCW created by the series of laws issued from 1997 through 2000. New roles and responsibilities were a constant topic as CTP members grappled with the assignation of new tasks and the cessation of modification of traditional ones.

The activities that we facilitated, especially the Watershed Management course and the seminars on micro-zoning norms, were for representatives from institutions that had no history of collaboration to form working relationships address and solve common problems. These personal working relationships are evolving, albeit slowly and in a hesitating manner into formal institutional arrangements.

The sub-watershed planning exercise addressed another dimension of institutional behavioral change. In working through this participatory planning initiative, CICH members not only were engaged in working with each but they were obliged to interact with local residents (beneficiaries) in a collegial fashion. This was a new experience for the CTP members and the institution they represent. Most found it productive (some found it gratifying) and seem receptive to adopting it as a standard approach.

Progress has been uneven and the process is not complete. There have been setbacks. For example, the ACP and ANAM backed away for a formal inter-institutional agreement on the handling of Environmental Impact Assessments for proposed PCW investments and ARI has yet to fully embrace the institutional roles developed by CICH members for implementing Law 21. The ACP continues to adapt to its new mandate (e.g. watershed management) and the cooperation with other CICH members required by this mandate. However, on balance progress is visible. The keys to this progress are understanding the dynamics of institutions that makes adaptation difficult and providing concrete activities (e.g. planning exercises, training courses) in which they can interact to solve common problems. The concrete activities provide the basis for courses considering the value of institutional change and the forum of interaction working out concrete measure for change.

TIMING

Timing is critical to successes of development investments. As noted above, this Task Order began as (1) the Canal transition was in full force and (2) and new government had just been democratically elected and was in the process of taking office. Counterpart energy we focused on these two critical events. Counterpart time and availability to concentrate on details of this Task Order siphoned off to address other priorities. For the first few months, access to counterparts was limited. The result was a slower than expected start up and an initial with a concomitant impact on the efficiency of donor resource use in the early stages of implementation.

The lesson here is patience and selection of proper moment to launch project. If the Task Order launch had been postponed by three months (post transfer of Canal) some of early implementation delays, attributable to counterpart concentration on other priorities, might have been avoided.

WHAT'S NEXT

THE NEAR FUTURE

The Bridge Contract activities. USAID/Panama has extended some EPIQ activities to be carried out by IRG through a Bridge Contract to be executed from October 1 to December 31, 2002. The unique political and economic period mentioned at the beginning of this document and under which EPIQ/IRG was working plus the fact that institutional times and responses vary considerably among them we had to adjust our times to obtain the expected results or adjust our results to the reality of these institutions. Thus, the activities to be continued under this new mechanism are the following:

- Continue the work on drafting the regulation of Law 21 under Phase I and continue with Phase II if the institutions come to a consensus and the CICH Commissioners agree to proceed to the following Phase.
- Facilitating the sub watershed action plan for Los Hules –Tinajones and Caño Quebrado that will be to be defined by local stakeholders
- Revision by MIVI, CICH member institutions and local governments of the draft document of the norms and standards for rural and urban micro zoning
- CICH web page launch
- Coordinating mechanisms with ACP.
 - Energy audit
 - Water management module
- Revision of the watershed module to be incorporated into an integrated management training program of ACP
- Final revision by ANAM and the Clean Production Inter Institutional Committee of the *Cost Benefit Study to Support a Draft Bill on Fiscal Incentives to Promote*

Clean Production.

THE BIG PICTURE

- Inter institutional voids and overlaps in their function
 - Coordinating mechanisms
 - Conflict resolution among CICH member institutions and with civil society
- Inter-institutional agreements, vetting of Law 21 regulation
- Institutional strengthening
 - Executive secretariat of CICH
 - Strategic planning
 - Strengthening of CICH's Permanent Technical Committee
- Execution of the PCW action plan proposed by the Local stakeholders at Los Hules-Tinajones and Caño Quebrado
- Replication of the watershed management methodology used by IRG after revision and modification
- Replication of micro zoning norms and standards in other sub watersheds

DELIVERABLES

INSTITUTIONAL SUPPORT PROGRAM COMPLETION PLAN

Tasks	Activities / Deliverable	Status
IR 1: INSTITUTIONAL ARRANGEMENTS FOR EFFECTIVE MANAGEMENT FUNCTIONING		COMPLETED.
Regional Plan Implementation	<ul style="list-style-type: none">• Policy analysis that inhibit or pose an obstacle for he implementation of the Regional Plan• Identification of alternatives for environmental sustainability• Identification of solutions to overcome the impediments for the implementation of the Regional Plan.• Determine opportunities for ecotourism in the Regional Plan• Develop a strategy and recommendations for assigning institutional responsibilities for the implementation of the Regional Plan	All activities completed.

Tasks	Activities / Deliverable	Status
Inter-institutional Watershed Management Mechanisms Review Representative Inter-institutional Models Identify PCW activities requiring controls and regulations Develop written agreements among CICH participants Develop action plans for public participation in CICH decision-making Review existing training facilities in Panama	<ul style="list-style-type: none"> • Inventory of Inter-Agency Watershed Management Entities • PCW Regulations and their enforcement • Inter-Institutional Agreements among CICH members • Public Information by CICH and Public Participation in CICH • Team Building related to the CICH 	All activities completed.
CICH Administrative Structure	<ul style="list-style-type: none"> • Declaration of the Mission, the role of CICH, development of by-laws, rules and regulations, and procedures for the effective functioning efforts of CICH • Establish goals for first year operations and operational plan and strategies for its implementation for CICH 	All activities completed.
CICH Financial Plan	<ul style="list-style-type: none"> • CICH self sustainable Financial Plan 	All activities completed.
DATA BASES/NETWORK	<ul style="list-style-type: none"> • Environmental Information Center for CICH that INCLUDES initial evaluations of needs and responsibilities, equipment and programs needed for the installation of the Center and means for its sustainability. 	All activities completed.
Urban Development	<ul style="list-style-type: none"> • Implementation of the Urban Development Component for the Regional and General Plans • Development and application of the Methodologies for Urban Economics and Urban Planning 	All activities completed.
Customer Service	<ul style="list-style-type: none"> • Customer Service Training Seminar for ARI Marketing Department • Seminar on Application of Electronic Tools and Methods for Client Follow-up for ARI Marketing Department 	All activities completed.

Tasks	Activities / Deliverable	Status
Drafting of a document to reformulate Bill 96 that modifies Law 21 (CICH)	<ul style="list-style-type: none"> 1. Normative document and reformulation of Bill No. 96 submitted by the General Secretariat of the Legislative Assembly for the consideration of the “Comisión de Asuntos del Canal” . This Bill originally included a the proposal to create a new category in the Regional and General Plan that would have created important changes in the land uses of the interoceanic region. 	All activities completed.
Third Round of Watershed Management Seminar (ACP)	<ul style="list-style-type: none"> Team Building Workshop Procedures Watershed Management seminar 101 	All activities completed.
Watershed Management Seminar for Environmental Units (CICH)	<ul style="list-style-type: none"> Watershed Management Seminar 201 Memoirs (Spanish) 	All activities completed.
Guest Lecture Series for ACP Senior Managers (ACP)	<ul style="list-style-type: none"> Guest Lecture Series Memoirs 	All activities completed.
Watershed Management Module Design for the Corporate University	<ul style="list-style-type: none"> Two modules (one 4-hour module for labor, technicians, and support personnel and one 8-hour module to middle level management, professional and supervisors)on Watershed Management for their use by the Division of Training and Development of the Panama Canal Watershed in their course related to the operation of the Canal and its new functions addressed to all ACP personnel. 	All activities completed by Sept 30 th
ACP-ANAM Inter-institutional Agreement (CICH) for Initial Screening Mechanism to Identify Potential Environmental Impacts (CICH)	<ul style="list-style-type: none"> This task was suspended by ACP at the review stage of the document due to a new norm related to the elaboration of Environmental Impact Studies released by ANAM without the knowledge of ACP. 	Suspended by ACP
Environmental Information Center (CICH)	<ul style="list-style-type: none"> Recommended design for Environmental Information Center of the CICH Preliminary Action Plan for the EIC 	All activities completed.

Tasks	Activities / Deliverable	Status
Hydro-Meteorological Data Base (ACP)	<ul style="list-style-type: none"> • Proposal for the design of a hydro meteorological data base for the ACP 	All activities completed.
Carbon Sequestration Estimates	<ul style="list-style-type: none"> • Project Land Cover Change and Carbon Emissions for the Eastern Region of the Panama Canal Watershed 	All activities completed
Recommendations for a strategy to assign institutional responsibilities for implementing the Regional Plan (ARI-USAID)	<ul style="list-style-type: none"> • This task has been undertaken by the Regulation of Law 21 where institutional responsibilities will be specified in the document. 	Suspended
Law 21 Regulations	<ul style="list-style-type: none"> • This is an ongoing task that has been divided into two phases, Phase I, the elaboration of a draaft document consolidated through a series of interinstitutional consultation and Phase II consultation with the civil society 	This task will is under Phase I, it will continue under another funding mechanism by Dec. 2002
Final Phase Development of a Five-Year Infrastructure Plan for the Canal Area (ARI)	<ul style="list-style-type: none"> • Five Year Infrastructure Plan for the Canal Zone Area • Five Year Infrastructure Plan (Spanish) 	All activities Completed.

Tasks	Activities / Deliverable	Status
Global Climate Change--- FUPASA (Fundación Panameña de Servicios Ambientales)	<ul style="list-style-type: none"> • Memoirs of First Workshop on Climate Change (CD-Rom) • Memoirs of Second Workshop on Climate Change (CD-Rom) • Design and Implementation of Forest-Based Carbon Projects • Initial MDL Portfolio for the Republic of Panama • Initial MDL Portfolio for the Republic of Panama (Spanish) • Guide for MDL Project Development (Spanish) • Basic Guide for MDL Project Development (Spanish) • Manual for Verification, Registration, Monitoring, Certification, and Adjunction of MDL Projects (Spanish) • Memoirs of Third Workshop on Climate Change (CD-Rom) • MDL Market and the Opportunities for Panama (Spanish) • A Plan to Support FUPASA's Sustainability (Spanish) 	All activities Completed.
IR 4: LOCAL GOVERNMENT AND PRIVATE SECTOR CAPACITY FOR ENVIRONMENTAL MANAGEMENT IN THE PCW AND BUFFER AREAS INCREASED		
Feasibility Study of Fiscal Incentives to Promote Clean Production Initiatives (ANAM)	<ul style="list-style-type: none"> • A document for ANAM on various e environmental Economic Incentives to Promote Clean Production 	All activities completed.
Cost / Benefit analysis of fiscal incentives to industries for early compliance of industrial waste water influence	<ul style="list-style-type: none"> • A document for ANAM on Cost / Benefit analysis of fiscal incentives to industries for early compliance of industrial wastewater influence for them to elaborate a law for these incentives. 	

Tasks	Activities / Deliverable	Status
Phase I and Phase II Clean Production-Cement, Electroplating, Tanning, Poultry, Swine, and Non-Metallic Mining Sectors (ANAM)	<ul style="list-style-type: none"> • Clean Production Summary • Six audit lights for six production Sectors (cement, electroplating, tanning, poultry, swine, and non-metallic mining) • Recommendations on Clean Production for ANAM on norms and standards on the six production sectors. (cement, electroplating, tanning, poultry, swine, and non-metallic mining) 	All activities completed.
Sub-watershed Planning – Two Sub-watersheds (CICH)	<ul style="list-style-type: none"> • Urban Micro Zoning Norms for the Subwatersheds of Chilibre and Chilibrillo (Spanish) • Rural Micro Zoning Norms for the Subwatersheds of Chilibre and Chilibrillo (Spanish) • Micro Zoning Norms Work Meeting Memoirs (Spanish) • Micro Zoning Norms for the Subwatersheds of Chilibre and Chilibrillo (Spanish) • Elaboration of an action plan for two the management of two watersheds, a bottom-up approach 	<p>1-4 activities completed.</p> <p>Activity 5, is currently being underway. It will be completed under another funding mechanism by Dec. 2002</p>

INSTITUTIONAL SUPPORT PROGRAM PUBLICATIONS LIST

AUTHOR	REPORT
Alicia Pitty	<ol style="list-style-type: none"> 1. Actividades Económicas en la Cuenca Hidrográfica del Canal de Panamá 2. Tres perfiles sobre le manejo de desechos sólidos en la Cuenca y evaluación del sector porcino en Panamá.
Amarilis Pinzón	<ol style="list-style-type: none"> 1. MDL Market and the Opportunities for Panama (Spanish) 2. A Plan to Support FUPASA's Sustainability (Spanish)
Ana Matilde Gómez	<ol style="list-style-type: none"> 1. Documento base de la reglamentación de la Ley 21 para la consulta inter-institucional y a la sociedad civil.
Andrés Navarro	<ol style="list-style-type: none"> 1. Urban Micro Zoning Norms for the Sub watersheds of Chilibre and Chilibrillo (Spanish)
Cecilia Moreno	<ol style="list-style-type: none"> 1. Synthesis of Representative Attitudes of People Living in the Panama Canal Watershed. 2. Demographic Description of the Rural Areas of the Watershed. 3. Demographic Description of the Western Region of the Watershed.
Emilio Doens	<ol style="list-style-type: none"> 1. Initial MDL Portfolio for the Republic of Panama (Spanish)
Emilio Sempris	<ol style="list-style-type: none"> 1. Basic Guide for MDL Project Development (Spanish) 2. Manual for Verification, Registration, Monitoring, Certification, and Adjunction of MDL Projects (Spanish) 3. Guide for MDL Project Development (Spanish) 4. Memoirs of First Workshop on Climate Change (CD-Rom) 5. Memoirs of Second Workshop on Climate Change (CD-Rom) 6. Memoirs of Third Workshop on Climate Change (CD-Rom)
Felix Paz	<ol style="list-style-type: none"> 1. Description of Legal Means to Hold or Use Land in Panama. 2. Description of Legal Means (and Institutions) Currently Utilized to Enforce Environmental Compliance in Panama. 3. Legal Basis for Establishment of a Trust Fund. 4. Analysis of Laws or Other Legal Documents Approved or in Process that Provide Basis for Public Entity (CICH) to Raise Funds Through Grants, Rents, Income from Sale of Public Goods/Services Related to Watershed Management. 5. Principal Legal Functions of Entities in CICH. 6. Aspectos Legales Relacionados con la Producción Más Limpia y sus Incentivos.

Humberto Mena	<ol style="list-style-type: none"> 1. Micro Zoning Norms Work Meeting Memoirs (Spanish) 2. Micro Zoning Norms and Standards for the Sub watersheds of Chilibre and Chilibrillo (Spanish)
Kathryn Herold	<ol style="list-style-type: none"> 1. Memos: Eco-tourism/Private Sector/Communications 2. Strategy for Implementation of Regional Plan 3. Regulatory Mechanisms 4. Stakeholder Analysis <ol style="list-style-type: none"> a. IPAT Investments
Leyson Guillén	<ol style="list-style-type: none"> 1. Descriptions of Existing and Proposed Programs and Projects in the Watershed; Inventory of Projects, including work done by Technoserve, ANCON, and also work financed by FIDECO.
Magnolia Calderón	<ol style="list-style-type: none"> 1. Análisis de uso de suelo en diferentes subcuencas de la Región Oriental de la Cuenca Hidrográfica del Canal de Panamá
Martín Mitre	<ol style="list-style-type: none"> 1. Biología acuática—su relación con la Cuenca del Canal de Panamá
Phillip Brown	<ol style="list-style-type: none"> 1. Proposal for the design of a hydro meteorological data base for the ACP 2. Field Manual for the Collection of Surface Water Samples for the Water Quality Unit, ACP (Spanish and English)
Sergio Blanco	<ol style="list-style-type: none"> 1. Rural Micro Zoning Norms for the Sub watersheds of Chilibre and Chilibrillo (Spanish)
William McDowell	<ol style="list-style-type: none"> 1. Case Study of Inter-Institutional management: Tri State Water Quality Council. 2. Background on Regional Plan Strategy. 3. Preliminary Findings on Critical Natural Resource Issues (English and Spanish). 4. Comments on process of developing a strategic approach. 5. El Impacto del Desarrollo Agro-pecuario, Forestal, y Urbano en los Suelos y Aguas de la Cuenca del Canal, with Leyson Guillén.

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